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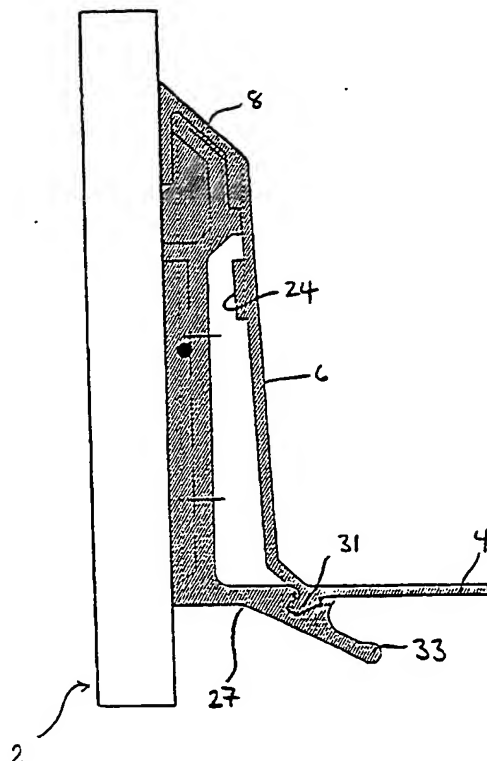
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(54) **A Drawer.**

(57) A drawer comprises a main body (1) and a fascia panel (2) adapted to be mounted on the front of the body (1). The fascia panel (2) and the drawer body (1) have cooperating means (3,9) for retaining an upper region of the panel (2) adjacent the front of the drawer body (1) during normal use of the drawer. The retaining means (3,9) permit downward movement of the upper region of the panel (2) relative to the drawer body (1) in order to release the upper region of the panel (2) from adjacent the drawer body (1). The fascia panel (2) is provided with a rearwardly extending resilient finger (27) at a position spaced from its upper region, the finger (27) having an abutment which cooperates with an abutment on the drawer body (1) and forms a snap-fitting connection therewith.

FIGURE 6



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A DRAWER.

The present invention relates to a drawer, such as is provided in an item of household furniture, and more particularly to a connection between a drawer body and a separate fascia panel.

It is known to form a drawer body as an integrally moulded, single unit and to provide a separate fascia panel, together with means for connecting the panel to the drawer body.

Various arrangements have been proposed for connecting the fascia panel to the drawer body. Simple arrangements which serve permanently to secure the front panel on the drawer body, such as screwing the panel in position, are cheap to produce but do not permit for adjustment of the panel relative to the drawer body if assembly of the complete unit is not effected with the necessary degree of accuracy. More complex arrangements have been proposed which allow for adjustment of the panel relative to the drawer body. However, these arrangements tend to be relatively expensive to produce and are often difficult or awkward to assemble and adjust.

The present invention seeks to provide a drawer having a connection between a drawer body and a fascia panel which is simple and cost-efficient to produce, assemble and which enables adjustment of the fascia panel relative to the drawer body in a quick and simple manner. The invention also seeks to provide a drawer in which the connection between the drawer body and the fascia panel will automatically become released if the fascia panel is subjected to a downwardly acting load in excess of a pre-determined limit.

According to the present invention there is provided a drawer comprising a drawer body and a fascia panel adapted to be mounted on the front of the drawer body, the fascia panel and the drawer body having cooperating means for retaining an upper region of the panel adjacent the front of the drawer body during normal use of the drawer, the retaining means permitting downward movement of the upper region of the panel relative to the drawer body in order to release the upper region of the panel from adjacent the drawer body; the fascia panel being provided, at a position spaced from said upper region, with a rearwardly extending, resilient finger having an abutment; the drawer body having an abutment designed to cooperate with the abutment of the resilient finger and form a snap-fitting connection therewith.

Preferably the retaining means comprise a rearwardly and upwardly extending projection provided on the rear surface of the fascia panel and a downwardly open recess formed on the drawer body, the recess being dimensioned to receive the

projection on the fascia panel as a snug fit.

Conveniently the recess defined by the drawer body and the projection on the fascia panel are provided with means for preventing sideways movement of the fascia panel relative to the drawer body when the projection is fully inserted into the recess.

Advantageously the means for preventing relative sideways movement comprises respective sets of cooperating teeth formed on the projection and in the recess defined by the drawer body, the sets of teeth meshing with each other when the projection is fully inserted in the recess.

Preferably means are provided for guiding the projection into the recess such that the means for preventing relative sideways movement are brought into effect when the projection is fully inserted into the recess.

Conveniently the guide means comprise a guide channel formed on one of the projection and the drawer body and a lug formed on the other of the projection and the drawer body, the arrangement being such that the lug passes through the guide channel when the means for preventing relative sideways movement are correctly aligned.

Advantageously the channel is formed on the drawer body and the lug is formed on the projection.

Preferably the channel is tapered in the direction of insertion of the projection into the recess defined by the drawer body.

Conveniently the cooperating abutments on the resilient finger and the drawer body each comprise a projection and a recess, the recess on each abutment being designed to releasably accommodate the projection on the other abutment so as to form the snap-fitting connection.

Advantageously the snap-fitting connection is a two-stage connection, an initial connection being established when the respective projections are partially within their respective recesses and a final connection being established when the projections are fully within their respective recesses, the arrangement being such that the means for preventing relative sideways movement are not operative when the initial connection is established but are operative when the final connection is established.

Preferably the abutments on the resilient finger and the drawer body are formed from a resilient material and the snap-fitting connection is designed automatically to release when the fascia panel is subjected to a downwardly acting load in excess of a pre-determined limit, said load also serving to release said retaining means such that the fascia panel becomes detached from the drawer body,

the resilience of the material from which the finger and the drawer body are formed permitting the fascia panel to be subsequently remounted upon the front of the drawer body.

Conveniently the resilient finger carries a tab or lever by way of which the snap-fitting connection may be manually released or manually adjusted.

Preferably the fascia panel is provided on its rear surface with a connector element having a central portion adapted to be secured to the rear surface of the panel, an upper portion constituting said rearwardly and upwardly extending projection and a lower portion defining said rearwardly extending resilient finger.

Conveniently the central portion of the connector element is adapted to be screwed onto the fascia panel, the central portion having a pair of elongate screw slots to permit vertical adjustment of the connector relative to the panel, each slot defining a central screw location point.

Perferably graduations or markings are provided adjacent each screw slot to facilitate vertical adjustment of the connector element relative to the fascia panel.

Advantageously two said connector elements are provided at positions spaced across the width of the rear surface of the fascia panel.

This invention also provides an item of furniture incorporating a drawer as described above.

In order that the present invention may be more readily understood and so that further features thereof may be appreciated, the invention will now be described by way of example with reference to the accompanying drawings in which:

FIGURE 1 is a perspective view of a drawer body forming part of a drawer in accordance with the present invention;

FIGURE 2 is a perspective view, from the rear, of a fascia panel adapted to be mounted on the front of the drawer body shown in Figure 1;

FIGURE 3 is a front view of a connector element mounted on the rear of the fascia panel shown in Figure 2;

FIGURE 4 is a side view of the connector element shown in Figure 3;

FIGURE 5 is a perspective view from underneath showing one corner of the drawer body of Figure 1;

FIGURE 6 is a cross-sectional view showing the fascia panel when mounted upon the drawer body;

FIGURE 7 is an enlarged sectional view of part of a connector element illustrating the change in configuration of the element as it moves to the released position upon downward loading of the fascia panel; and

FIGURE 8 corresponds to Figure 3 and shows a modified design of the connector element.

A drawer in accordance with the present invention comprises a drawer body 1 as shown in Figure 1 and a fascia panel 2, as shown in Figure 2, carrying, on its rear surface, a pair of connector elements 3. The connector elements 3 enable the fascia panel 2 to be releasably mounted upon the front of the drawer body 1.

The drawer body comprises an integrally moulded unit which is, in plan view, substantially square and comprises a base 4, side walls 5, a front wall 6 and a rear wall 7. The walls 5,6,7 extend into a bevelled upper edge 8 which extends upwardly and outwardly from the walls and terminates in a downwardly depending skirt 9 which extends downwardly over substantially the full depth of the drawer body at a position spaced from the side walls 5. At the rear the skirt 9 is of slightly lesser depth than adjacent the sides of the body whilst at the front of the drawer body the skirt 9 extends down over only a short distance at a position spaced from the upper edge of the front wall 6, as is clearly visible in Figure 1 of the drawings.

The space between the skirt 9 and each side wall 5 serves partially to accommodate a drawer runner which is mounted on the base 4 of the drawer body adjacent its junction with each side wall 5 by way of mounting points 10 provided at the front and at the rear (not visible on the drawings) of the drawer body. The mounting points 10 may comprise a recess into which a projecting tab formed on the drawer runner is inserted. Webs 11 extend between the side walls 5 and the skirt 9 and, at each corner of the drawer body, a web 11 is provided which extends from the skirt in a direction towards the centre of the drawer body, this web serving both to stiffen the structure and also to prevent relative movement between nested drawer bodies, since the webs 11 are received in the corners of the bevelled upper edge 8 when the drawer bodies are nested. The drawer body is designed to nest with a further drawer body so that the total height of two nested bodies is equal to approximately one and a half times the height of a single body, i.e. the design provides for 50% nesting. The skirt 9 is slightly flexible to provide a snug fit between nested drawer bodies.

The front of the drawer body and the connector elements 3 on the rear of the fascia panel 2 are provided with cooperating elements by way of which the fascia panel may be mounted upon the front of the drawer body. Thus, the drawer body and the connector elements are provided with means for retaining the upper region of the fascia panel in position adjacent the front of the drawer body during normal use of the drawer and with means forming a snap-fitting connection between the connector elements and the drawer body at a

position adjacent the base of the front wall 6 of the drawer body. Each connector element 3 has a central portion through which the connector element may be screwed onto the rear of the fascia panel, an upper portion forming part of the retaining means and a lower portion 15 carrying a rearwardly extending, resilient finger forming part of the snap-fitting connection.

Looking at the structure of each connector element 3 in more detail, the central portion 13 is rectangular in front elevation, as can be seen from Figure 3 and has a substantially planar rear surface 16 which lies flat on the rear surface of the fascia panel 2 when the connector element is mounted thereon. The central portion 13 defines a pair of centrally located, vertically spaced apart, elongate screw slots 17, through which screws may be passed in order to screw the connector element onto the rear surface of the fascia panel. Each slot 17 defines a central screw location point which is extended so as to form an elongate slot, thereby allowing for vertical adjustment of the connector element relative to the fascia panel upon mounting the connector elements on the panel. The elongate slots are counter-sunk so that the head of a screw received within the slot lies substantially flush with the front surface of the central portion 13. In order to facilitate the vertical adjustment of the connector element relative to the fascia panel graduations or markings 18 are provided at pre-set intervals on the front surface of the central portion 13 adjacent the elongate slot. The markings 18 extend perpendicularly to the longitudinal axis of the elongate slot 17.

At its upper end the central portion 13 extends, when mounted upon the fascia panel, rearwardly and upwardly into a head 19 forming the upper portion of the connector element. The rear surface of the head 19 is off-set from the rear surface 16 of the central portion 13 such that a space is defined between the rear of the head and the rear surface of the fascia panel. The head 19 is dimensioned to fit snugly within the recess defined beneath the bevelled edge 8 between the skirt 9 and the front wall 6 of the drawer body. The head 19 has a bevelled upper edge 20 which is bevelled at the same angle as the bevelled edge 8 of the drawer body. The bevelled edge 20 carries a set of serrations or teeth 21 which extend across the width of the head in a direction parallel to the vertical axis of the connector element. The teeth 21 are designed to cooperate with a corresponding set of teeth 22 formed on the underside of the bevelled edge 8 of the drawer body at a position relatively close to the side wall of the drawer body. The front of the drawer body is symmetrical about a central vertical axis and thus a set of teeth 22 are provided adjacent each end of the bevelled edge 8 at the

front of the drawer body.

At a central position adjacent the region where the head 19 extends into the central portion 13, a projecting lug 23 is formed on the front surface of the head. The lug 23 forms part of a guide means which assist the correct alignment of the connector elements relative to the drawer body upon insertion of the head 19 into the recess beneath the bevelled edge 8 of the drawer body and which serves to ensure that the sets of teeth 21,22 are correctly brought into engagement. The front wall 6 of the drawer body is formed with a pair of projections 24 which serve to define a tapering channel 25. The channel 25 tapers in a direction towards the upper, bevelled edge of the drawer body and is dimensioned such that the lug 23 will pass through the channel when the connector elements are correctly aligned relative to the drawer body. A stop 26 is formed at the upper edge of the front wall 6 of the drawer body at a position aligned with the channel 25 and the set of teeth 22, the lug 23 engaging the stop 26 when the head 19 is fully inserted into the recess beneath the bevelled edge 8.

At its lower end each connector element carries a resilient finger 27 which extends rearwardly away from the fascia panel at approximately 90° to the remainder of the connector element. The upper surface of the resilient finger defines an abutment comprising a pair of jaws, the jaws being constituted by a first projection 28 and a second projection 29 with a recess 30 therebetween, the recess being configured to receive an appropriately shaped projection 31 formed at the junction of the front wall 6 and the base 4 of the drawer body. Immediately adjacent the projection 31, the drawer body defines a recess 32 designed to accommodate the projection 28 formed on the resilient finger of the connector element. As mentioned above the abutment on the resilient finger and the abutment comprising the projection 31 and the recess 32 formed at the bottom of the front edge of the drawer body form a snap-fitting connection.

The snap-fitting connection is a two-stage connection, that is to say, upon pressing the abutment formed on the resilient finger 27 into engagement with the cooperating abutment on the drawer body an initial connection is formed wherein the projection 31 formed on the drawer body is received partially within the recess 30 and the projection 28 on the resilient finger is received partially within the recess 32 on the drawer body. When the snap-fitting connection is in this initial condition, although the head 19 is received behind the skirt 9, the sets of teeth 21,22 formed on the head of the connector element and on the underside of the bevelled edge of the drawer body are not in engagement with each other and thus the fascia panel and the connector elements may be moved relative to the

drawer body in a sideways direction, whilst the fascia panel and the connector elements are still supported upon the front of the drawer body. Pushing the two abutments further into engagement causes the snap-fitting connection to move to a final connection position, as illustrated in Figure 6 of the drawings. When the snap-fitting connection is in this position the sets of teeth 21,22 are in engagement with each other and thus the fascia panel is effectively locked in position.

The free end of the resilient finger 27 extends from the abutment defining part of the snap-fitting connection to form a tab or lever 33 by way of which the snap-fitting connection may be manually released or manually adjusted, that is to say moved from the final connection position to the initial connection position in order to allow for lateral adjustment of the fascia panel relative to the front of the drawer body.

The connector elements and the drawer body are formed from a material which is sufficiently resilient to enable the snap-fitting connection automatically to release when the fascia panel 2 is subjected to a downwardly acting load in excess of a pre-determined limit. Figure 7 illustrates, in solid line, the normal configuration of the resilient finger 27 when the connector element is mounted on the front of the drawer body. The change in configuration of the resilient finger when the snap-fitting connection becomes released upon excessive vertical loading on the fascia panel is shown in dotted lines and it can be seen that the jaws of the snap-fitting connection constituted by the projections 28,29 become prised apart as the connector element moves downwardly and outwardly away from the front of the drawer body. Eventually the projection 28 rides over the edge of the projection 31 on the drawer body and the snap-fitting connection becomes released and the head 19 of the connector element becomes disengaged from behind the skirt 9 at the upper edge of the drawer body. The automatic release of the connection between the fascia panel and the drawer body when the panel is subjected to an excessive load prevents damage to the drawer runners and to the drawer itself. The resilience of the material from which the connector elements and the drawer body are formed enables the connector elements subsequently to be reconnected to the front of the drawer body without the automatic release having in any way detrimentally affected the connection.

It will be appreciated from the above description that in use the connector elements 2 are screwed onto the back of a fascia panel at pre-determined positions spaced across the width of the panel with screws passing through the central screw location points in the elongate slots 17. The panel is then mounted on the front of the drawer

body by introducing the head 19 of each connector element into the recess beneath the bevelled edge 8 of the drawer body, this action being facilitated by way of the guide lug 23 passing along the tapering guide channel 25. When the head 19 is fully inserted in the recess the abutments on the resilient finger 27 and on the lower edge of the front of the drawer body may be pushed together to form a snap-fitting connection.

If it is necessary to adjust the position of the fascia panel vertically relative to the drawer body, then the fascia panel may be removed from the drawer body by pulling the tabs or levers 33 towards the fascia panel in order to release the snap-fitting connection and lowering the panel such that the head 19 becomes disengaged from the recess beneath the bevelled edge 8. The screws by way of which the connector elements are secured to the back of the fascia panel are then loosened and the connector element may be moved up or down by an appropriate amount before the screws are again tightened in order to secure the connector elements in position. The graduations or markings 18 enable each connector element to be moved accurately through the same distance without having to reassemble the drawer in order to check that both connectors have been moved through the same distance. In addition the graduations or markings 18 facilitate the adjustment of panels on a large number of drawers where all of the panels are to be moved up or down by the same amount.

If it is necessary to adjust the position of the panel sideways relative to the drawer body, then the snap-fitting connection may be moved from the condition illustrated in Figure 6 to the initial connection position where the connector element is lowered slightly such that the sets of teeth 21,22 become disengaged but the connector element, and the fascia panel is still supported on the projection 31 formed at the base of the drawer body. The panel may then be moved sideways by sliding the connector elements along the projection 31 until the desired position is reached. The abutments formed on the resilient finger and the drawer body are then pushed together again so that the snap fitting connection moves into the final connection position as illustrated in Figure 6. This brings the sets of teeth 21,22 into engagement once more so that the connector element is locked in position.

Figure 8 illustrates a modified design for the connectors 3. The design is similar to that of the connector element shown in Figures 3 and 4 and for ease of description the same reference numerals are used to designate features which are common with those in the connector element of Figures 3 and 4. Thus, the modified connector element of Figure 8 has an upper portion 14 and a lower portion 15 which is substantially identical to

the corresponding portions of the element shown in Figures 3 and 4 and thus no further description of these portions will be given. The central portion 13 of the connector element has been modified by the addition of a third centrally located elongate slot 17. The slots are arranged with one slot positioned adjacent the top of the central portion 13 and two further slots 17 positioned near the bottom of the central portion 13. The elongate slots 17 are each of similar form to the slots 17 in the connector element shown in Figures 3 and 4, each slot having a central screw location point which is extended so as to form an elongate slot which allows for vertical adjustment of the connector element relative to the fascia panel when mounting the connector elements on the panel. Each slot is countersunk so as to fully receive the head of a screw. Graduations or markings 18 are provided adjacent each of the three slots in the same manner as described above in relation to the elements shown in Figures 3 and 4.

The two lowermost slots 17 in the connector element of Figure 8 are, in effect, "isolated", by way of a U-shaped aperture 34 which passes through the central portion 13 of the connector element. The two lowermost slots 17 are therefore connected to the main central portion 13 of the connector element by way of the portion of material disposed between the free upper ends of the two arms of the U-shaped aperture 34. The aperture 34 is shown hatched for the purposes of illustration only.

The provision of a third fixing slot enables the connector element to be secured to the back of a fascia panel with fixings spaced apart either by 32mm (the distance between the central screw location points in the uppermost slot 17 and the upper of the two lower slots 17) or by a distance of 48mm (the distance between the central screw location points in the upper slots 17 and the lower of the two bottom slots 17). The provision of the U-shaped aperture or cut out 34 serves to prevent loosening of the lower fixing point if the draw is slammed closed or pulled open in a violent manner. Thus, the aperture 34 serves to act as a form of shock absorber. When the draw is slammed the main spine of each connector element will flex but the two lower fixing points are isolated from the spine of the connector element by the cut out 34 and therefore do not move but remain firmly engaged against the rear of the fascia panel so that the fixing is not loosened.

The features disclosed in the foregoing description, in the following claims and/or in the accompanying drawings may, both separately and in any combination thereof, be material for realising the invention in diverse forms thereof.

Claims

1. A drawer comprising a drawer body (1) and a fascia panel (2) adapted to be mounted on the front of the drawer body (1), the fascia panel (2) and the drawer body (1) having cooperating means (3,9) for retaining an upper region of the panel (2) adjacent the front of the drawer body (1) during normal use of the drawer, the retaining means (3,9) permitting downward movement of the upper region of the panel (2) relative to the drawer body (1) in order to release the upper region of the panel (2) from adjacent the drawer body (1); the fascia panel (2) being provided, at a position spaced from said upper region, with a rearwardly extending, resilient finger (27) having an abutment; the drawer body (1) having an abutment designed to cooperate with the abutment of the resilient finger (27) and form a snap-fitting connection therewith.
2. A drawer according to Claim 1 wherein the retaining means (3,9) comprise a rearwardly and upwardly extending projection (19) provided on the rear surface of the fascia panel (2) and a downwardly open recess formed on the drawer body (1), the recess being dimensioned to receive the projection (19) on the fascia panel (2) as a snug fit.
3. A drawer according to Claim 2 wherein the recess defined by the drawer body (1) and the projection (19) on the fascia panel (2) are provided with means (21,22) for preventing sideways movement of the fascia panel (2) relative to the drawer body (1) when the projection (19) is fully inserted into the recess.
4. A drawer according to Claim 3 wherein the means (21,22) for preventing relative sideways movement comprises respective sets of cooperating teeth formed on the projection (19) and in the recess defined by the drawer body (1), the sets of teeth meshing with each other when the projection is fully inserted in the recess.
5. A drawer according to Claim 3 or Claim 4 wherein means (23,24) are provided for guiding the projection (19) into the recess such that the means (21,22) for preventing relative sideways movement are brought into effect when the projection (19) is fully inserted into the recess.
6. A drawer according to Claim 5 wherein the guide means comprise a guide channel (25) formed on one of the projection (19) and the drawer body (1) and a lug (23) formed on the other of the projection (19) and the drawer body (1), the arrangement being such that the lug (23) passes through the guide channel (25) when the means (21,22) for preventing relative sideways movement are correctly aligned.
7. A drawer according to any one of Claims 1 to 6 wherein the cooperating abutments on the resilient finger (27) and the drawer body (1) each comprise

a projection and a recess, the recess on each abutment being designed to releasably accommodate the projection on the other abutment so as to form the snap-fitting connection.

8. A drawer according to Claim 7, as dependent upon Claim 3, wherein the snap-fitting connection is a two-stage connection, an initial connection being established when the respective projections are partially within their respective recesses and a final connection being established when the projections are fully within their respective recesses, the arrangement being such that the means (21,22) for preventing relative sideways movement are not operative when the initial connection is established but are operative when the final connection is established.

9. A drawer according to any one of the preceding Claims wherein the abutments on the resilient finger (27) and the drawer body (1) are formed from a resilient material and the snap-fitting connection is designed automatically to release when the fascia panel (2) is subjected to a downwardly acting load in excess of a pre-determined limit, said load also serving to release said retaining means (3,9) such that the fascia panel (2) becomes detached from the drawer body (1), the resilience of the material from which the finger (27) and the drawer body (1) are formed permitting the fascia panel (2) to be subsequently remounted upon the front of the drawer body (1).

10. A drawer according to Claim 2 or any Claim dependent thereon, wherein the fascia panel (2) is provided on its rear surface with a connector element (3) having a central portion (13) adapted to be secured to the rear surface of the panel (2), an upper portion (14) constituting said rearwardly and upwardly extending projection (19) and a lower portion (15) defining said rearwardly extending resilient finger (27).

FIGURE 1

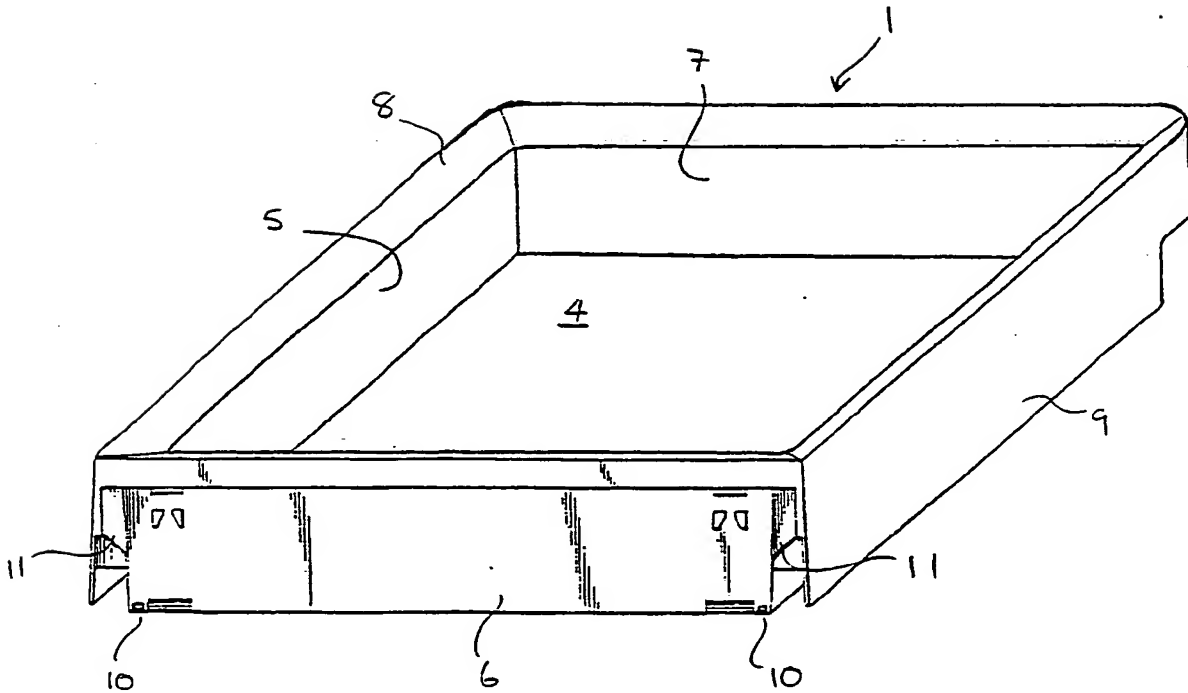


FIGURE 2

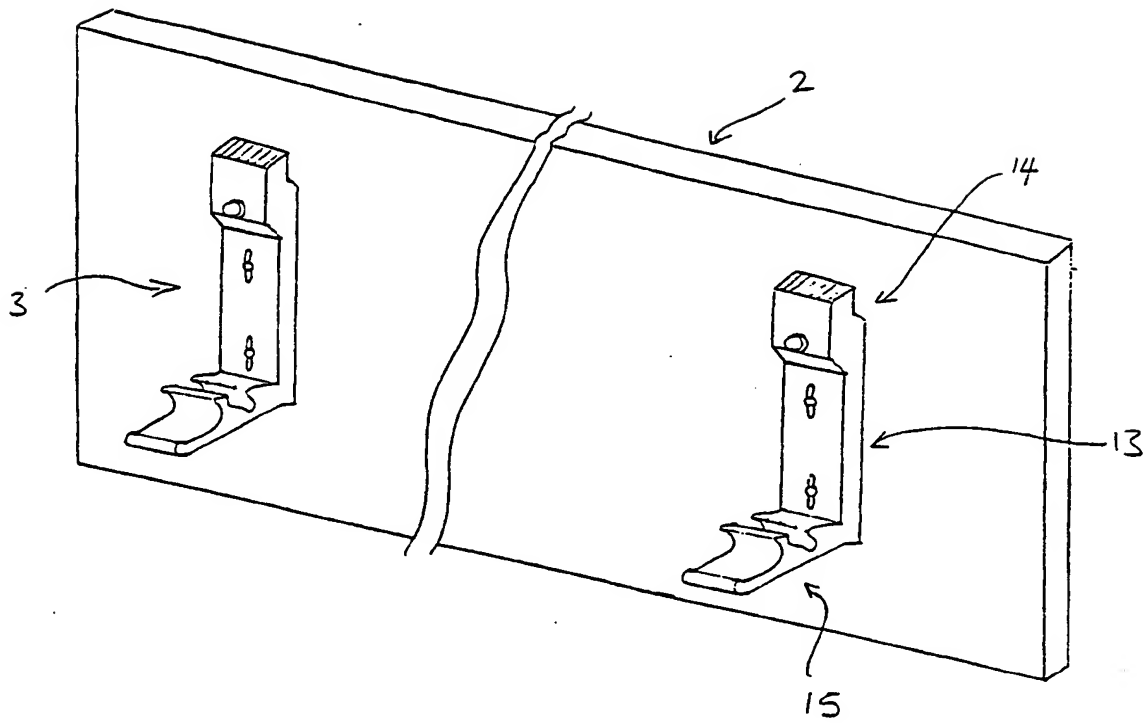


FIGURE 3

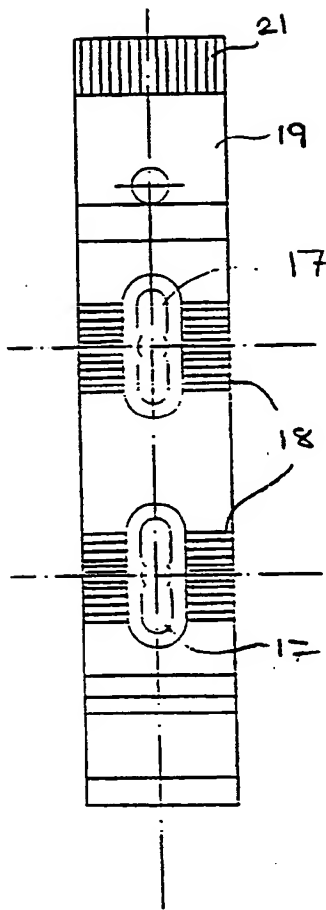


FIGURE 4

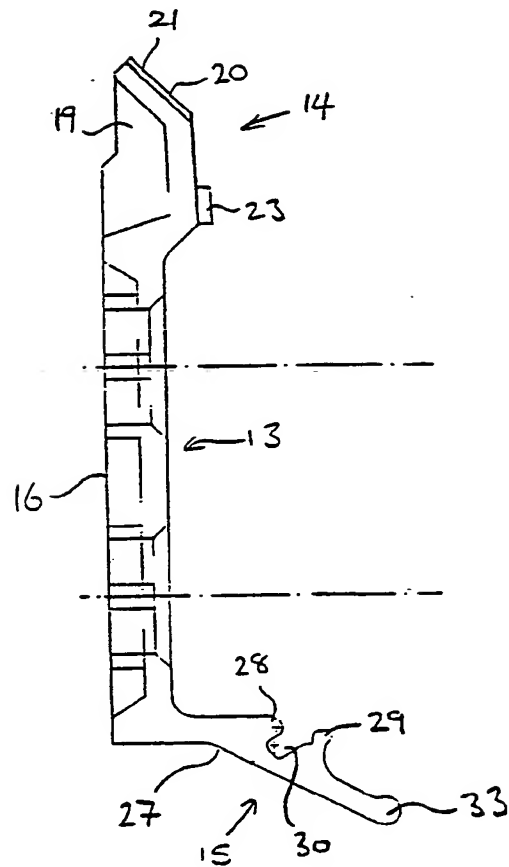


FIGURE 5

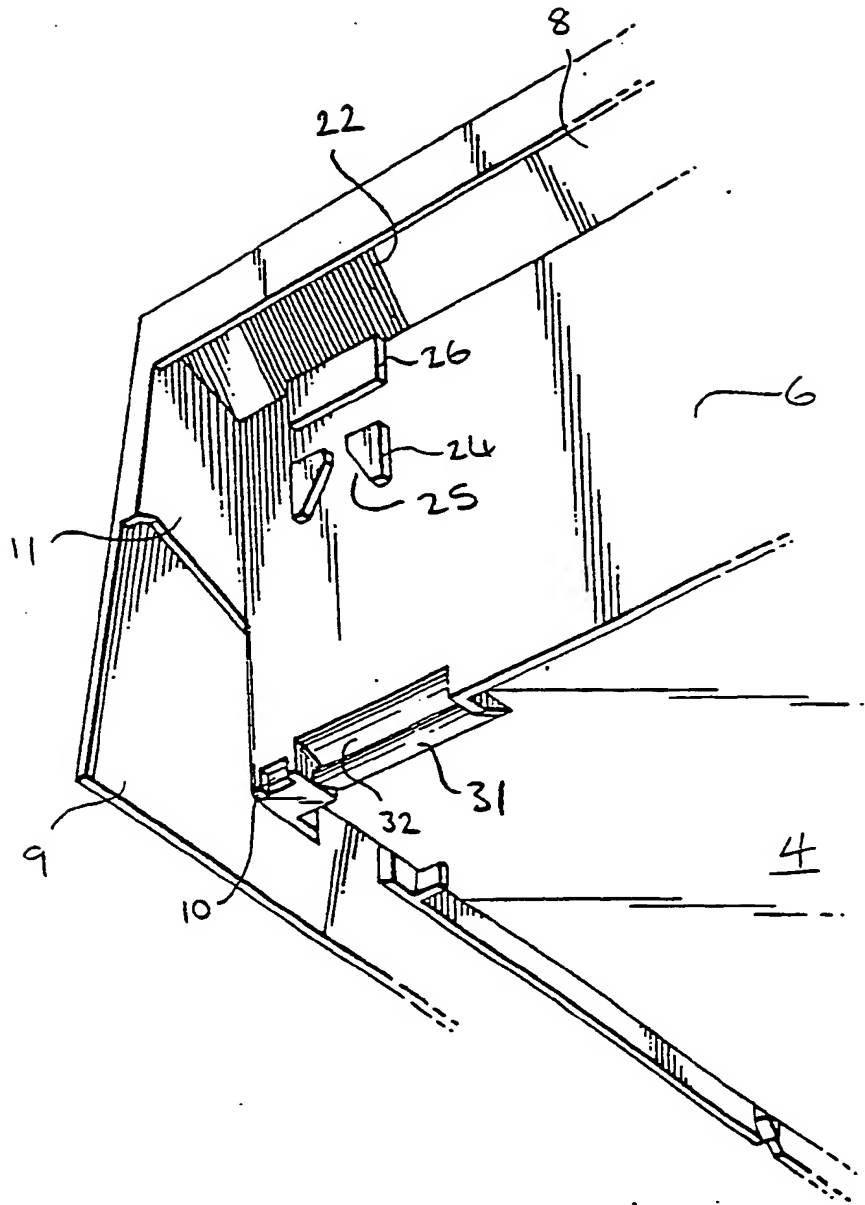


FIGURE 6

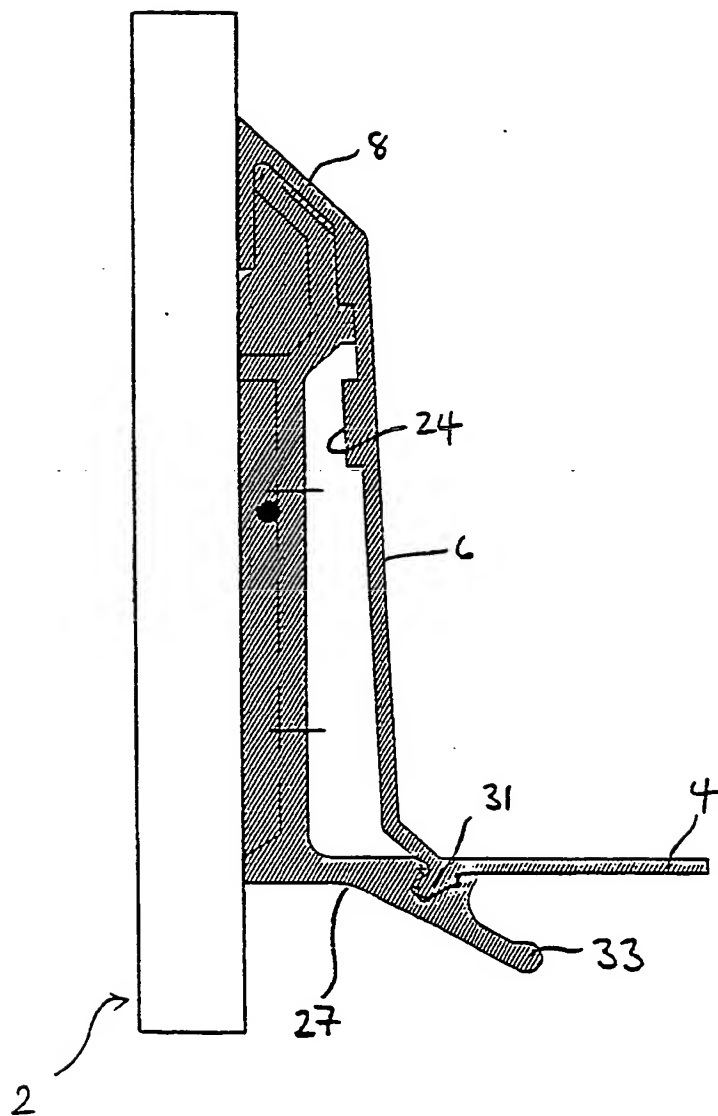


FIGURE 7

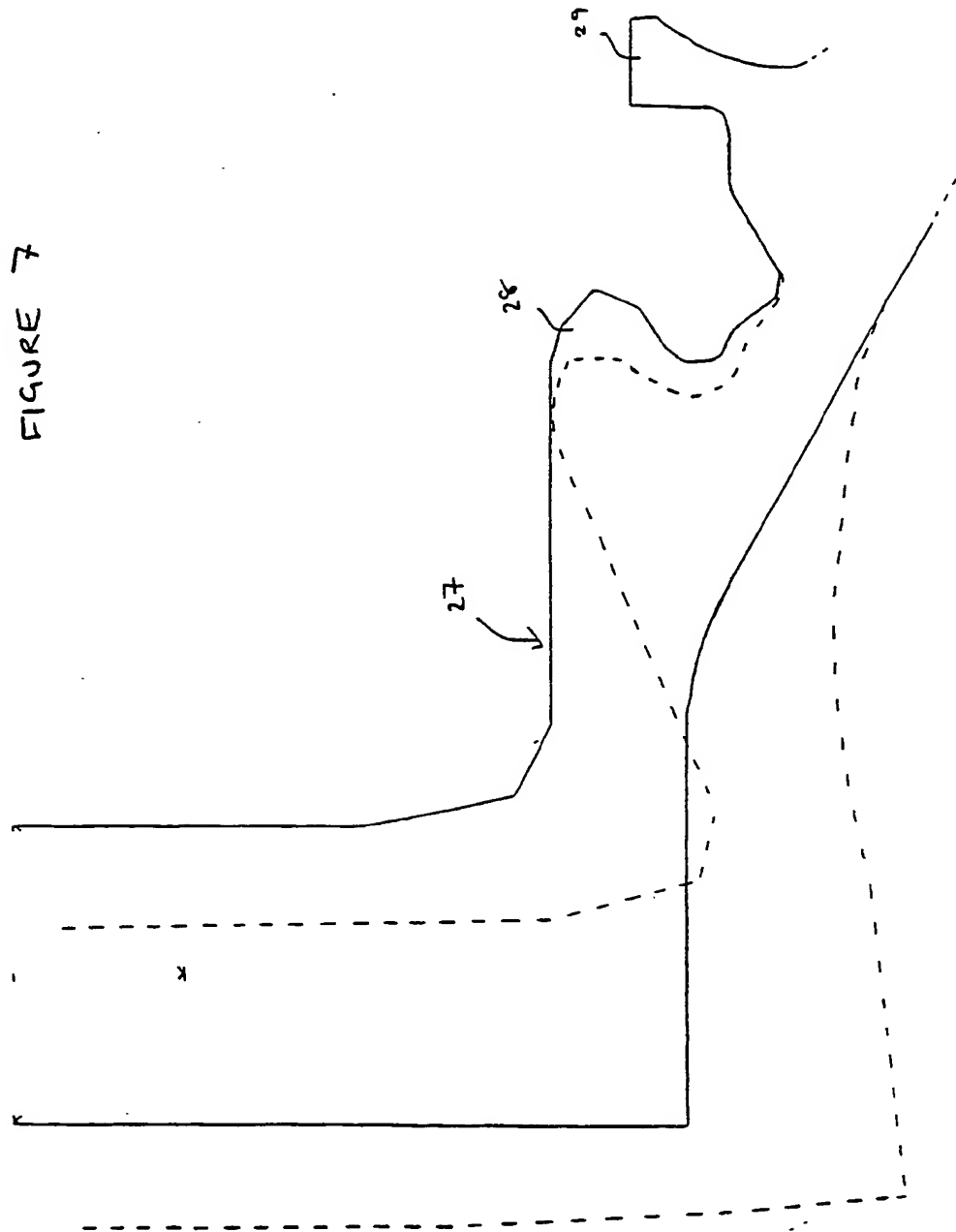
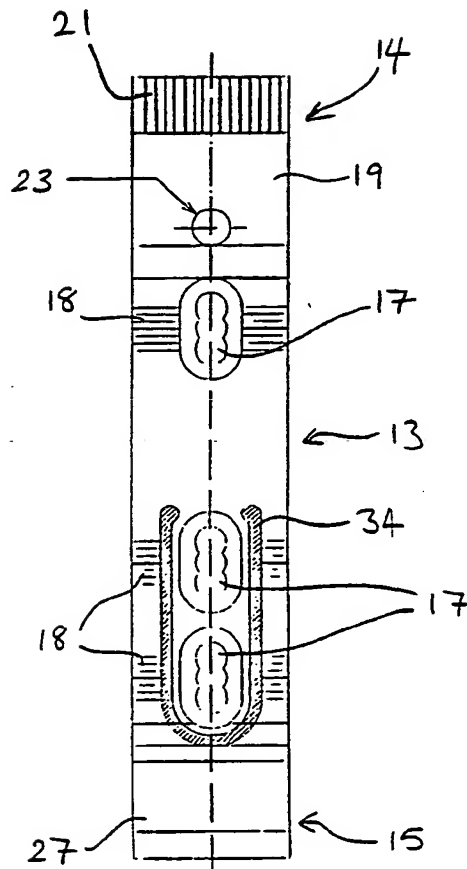


FIGURE 8





European
Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 31 2297

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	FR-A-2 506 143 (R. HEINZ GmbH & CO. KG) * Page 1, last paragraph - page 2, paragraph 2 * -----	1,3,4,5,7	A 47 B 88/00
A	EP-A-0 160 733 (DUPREE) * Abstract; figures 1-8 * -----	1	
A	DE-A-2 745 896 (R. HEINZ) * Page 7, last paragraph - page 8, last paragraph; figures 1-7 * -----	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A 47 B
Place of search The Hague		Date of completion of search 18 February 91	Examiner JONES C.T.
<div><div>CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention</div><div>E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document</div></div>			

